

**Achieving Scale  
as a  
Technology Designer, Integrator or  
Contractor**

# Introduction

# WHAT IS SCALING

- In the simplest sense, scaling is;

**A proportional increase in size**



1/64 = 3"



1/43 = 3.5"



1/24 = 7"



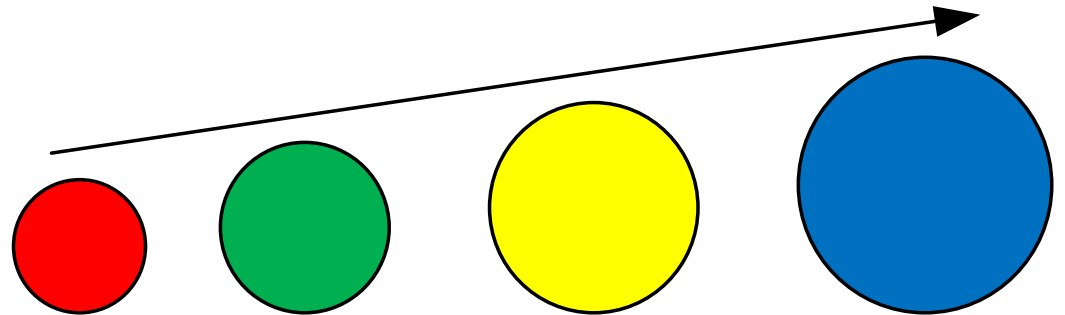
1/18 = 9.5"

\*Please Note: All sizes are approximate and vary by model.

# WHAT IS SCALING

- In the simplest sense, scaling implies:

**A linear increase in proportion**



# Business Scaling

# Business Scaling

- OPERATIONAL DEFINITION OF SCALING

In regard to business, scaling is:

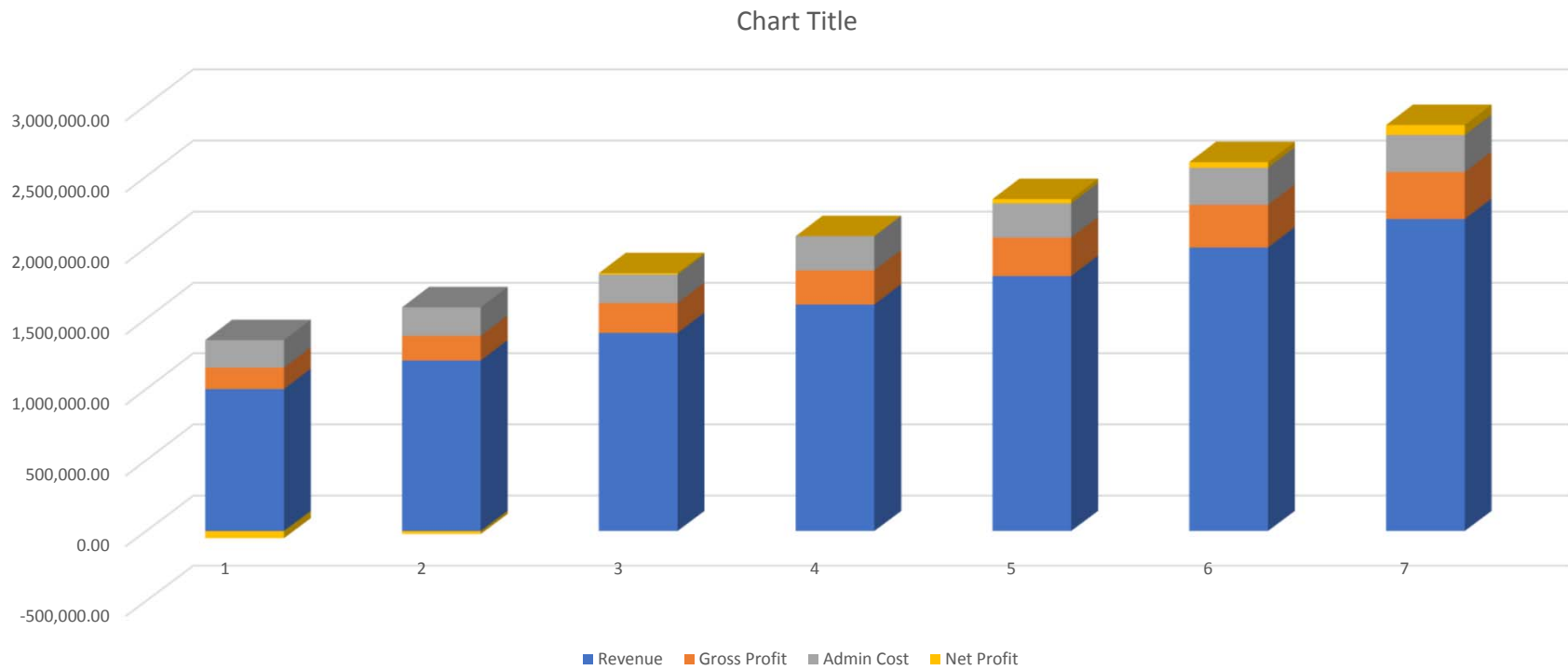
The strategic use of investment and efficiency with the goals of achieving proportional growth and associated proportional (or more) profitability

# Key Business Scaling Metrics

- Revenue
- Expense
- Gross Profit
- Gross Profit %
- Administrative Expense
- Net Profit
- Net Profit %



# Business Linear Scale





# Scale and Growth

## Scale

- A **proportional** increase in size of key business variables with intention of leveraging size and efficiency to increase profitability

## Growth

- An increase in size of key business variables:
  - Revenue
  - Expense
  - Assets
  - Employees
  - Facilities
  - Equipment / Tooling

# Why Scale?

# Why Scale?

- We are doing well and have achieved success.
- Can we replicate and grow in proportion (scale) what we have accomplished to have the advantages of a larger organization and make more money?

# Why Scale?

- Considering the challenges and associated risks, why scale up?
  - Increased profitability
  - Advantages of larger organization
    - Financial
    - Purchasing
    - Wider base for distribution of risk
  - More conspicuous position in market
  - Position larger organization for sale
  - Pressure from growing client

# Being Pushed Into Scaling

- Significant client grows and rapid rate
- Client represents significant portion of all revenue
- Declining to scale makes your organization less attractive and invites competition



# Scale and Ego

- A plan to scale up is inherently attractive. It implies strength of the organization and success.
- Business owners need to focus on the available objective data, acknowledge both strengths and weaknesses and keep in check, the ego appeal of scaling



# Business Type and Scaling

# Business Type and Scaling

## Low Cost, Low Effort Replication

- Production (tasks and products) that can be easily replicated faster at lower cost than when originally completed

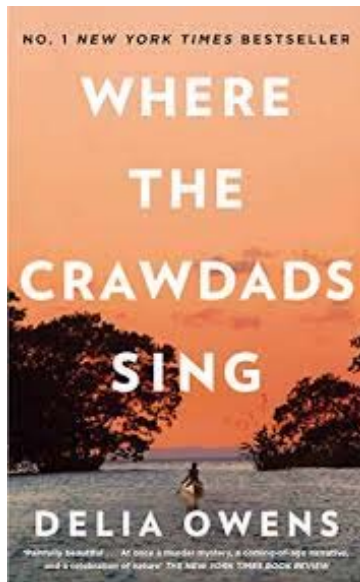
## Consistent Cost, Consistent Effort Replication

- Production (tasks and products) that can be not be easily replicated faster or at a lower cost



# Publishing Scale Paradigm

## New York Times Best Seller



## Profitability

- X number of books sold to cover up front costs
- X + 1 books sold to begin profitability
- All books sold after up front costs covered, highly profitable
- 1,100,000 copies sold since release

# Stone Sculpting Paradigm

- Specific skill set
- Not easily replicated
- 1:1 scale requirement.....
- Until technology intercedes

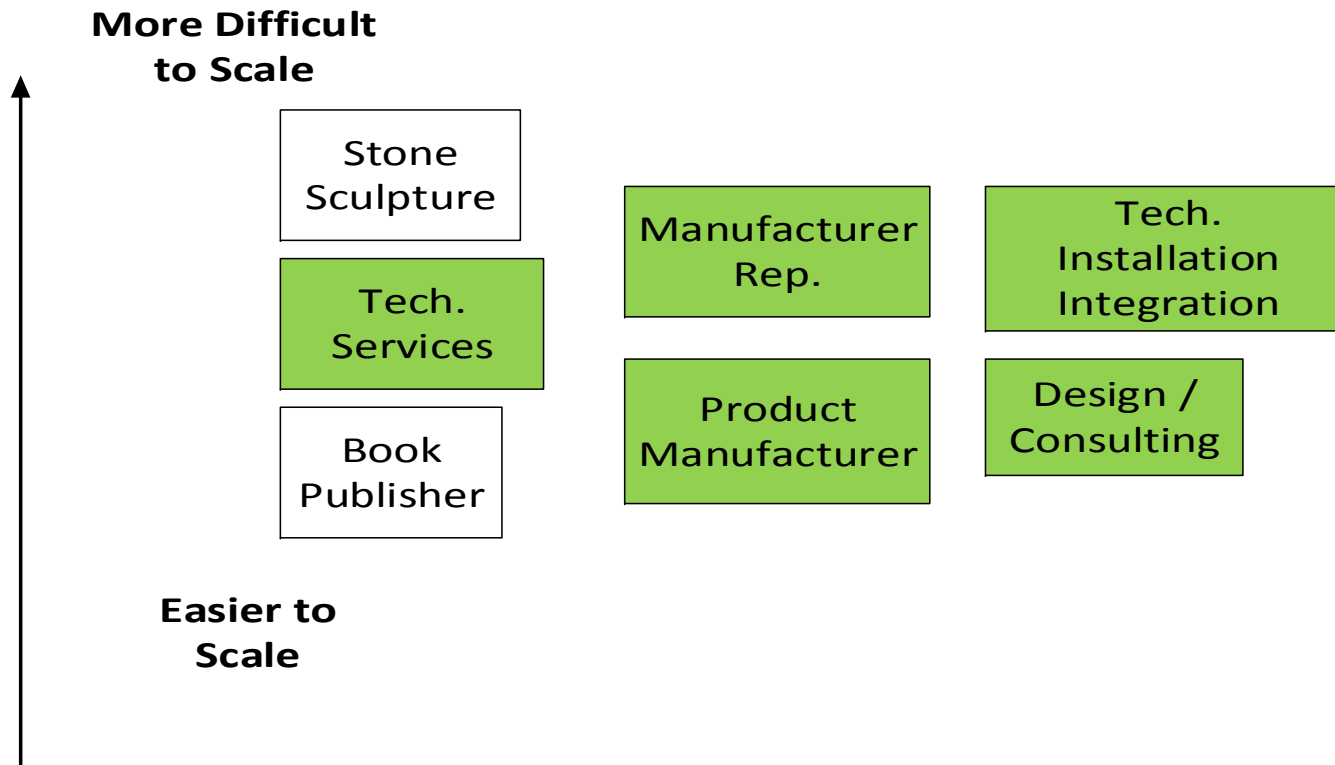


# Business Type and Scaling

- Business that produce **consistent cost, consistent effort** (original) products or services are inherently more challenging to scale
- Producing 1 essentially costs 1x, producing 10 essentially costs 10x



# Ease of Scaling as Technology Services Firm



# Technology Services Paradigm

- Significant variation in services offered
- Many specific skill sets required
- Some tasks original and not easily replicated at lower cost
- Some tasks easily replicated at lower cost



# Material and Tech Services Business Variables



# Material and Tech Services Business Variables



- Variables include:
  - Current pricing
  - Availability (stock)
  - Lead time
  - Storage (warehousing)
  - Transportation / logistics

# Material and Tech Services Business Variables



- Variables include:
  - Material variables
  - Construction schedule
  - Other trades completing work
  - Sequencing of tasks
  - Job site material handling & staging
  - Weather
  - Availability of labor
  - Accuracy of issued drawings and specifications



# Predictive Profitability Material and Tech Services Business



- Sell price, cost and profitability fairly predictable
- Very limited or no ability to improve profit
- Very limited exposure to loss (assuming client pays)

# Predictive Profitability Material and Tech Services Business



- Sell price, cost and profitability much less predictable
- Ability to improve profit through production and efficiency
- Significant exposure to loss

# Prerequisites to Achieving Scale

# Counter Intuitive Scaling Comments

- “We can’t find anything in our warehouse. It seems we are getting busy, let’s get a bigger warehouse”
- “There aren’t two project managers in the company that do things the same way. We are getting busy, let’s hire three more.”
- “Two trucks sat here for the last month. Now they are out in the field and operations is screaming for vehicles. I guess we will get two more”.

# Prerequisites to Successfully Achieving Scale

- Access to objective PRECEDENCE based data in SUCCESSFUL business development, operational and administrative activities
- Use of that data to plan for and implement scaling strategies



# Prerequisites to Successfully Achieving Scale

- What business development or marketing strategies have yielded good opportunities
- What client facing strategies strengthen client relationships
- What size(s) of projects have yielded successful results
- What type(s) of projects have yielded successful results
- What regions within your market have been a good fit

# Prerequisites to Successfully Achieving Scale

- Tracking key metrics within organization
- Capture and utilize the acquired data
- Understanding organizational strengths
- Understanding organizational weaknesses
- Knowing what you are good at
- Knowing what you are not good at
- Knowing what you need to shore up prior to growth

# Impact of Scaling Decisions

- Every strategic decision regarding growth or scale needs to be based on the objective impact of that decision





# Impact of Scaling Decisions

- “Good judgement comes from experience, and experience usually comes from bad judgement”

Anonymous

# Strategies for Achieving Scale

# Strategies for Achieving Scale

- Scaling requires the capacity to maintain consistent productivity and performance as you complete more work. It is only achievable through gains in **efficiency** that yield increased capacity or **investment** and associated efficiency that yield increased capacity

# Strategies for Achieving Scale

## INVESTMENT

- Larger facility
- Additional staff
- Additional equipment / tooling
- Additional resources

## EFFICIENCY

- Increasing capacity through process improvement
- Leveraging replication whenever possible
- Leveraging repetition whenever possible
- Getting more out of who and what you already have

# Strategies for Achieving Scale

- Investment and Efficiency are inter-linked in achieving scale. They overlap in relation to a specific goals.
- A value proposition in investing in new equipment is often improved efficiency

# Strategic Investment Scaling

- An essential element of investment scaling is knowledge regarding the impact of cost
- Cost of investment
- Relationship between investment cost and required profitability
- Return on Investment (ROI)  
Anticipated Profit \$ Value
- ROI anticipated time period

# Landscaping Scale Paradigm

## Standard Mower



## Associated Data

- 400.00 unit cost
- Cuts 5000 sq. ft of lawn per hour

# Landscaping Scale Paradigm

## Commercial Mower



## Associated Data

- 4000.00 unit cost
- Cuts 30, 000 sq. ft of lawn per hour



# Efficiency Scaling

- Identify and leverage easily replicable tasks
- Continually improve processes to maximize efficiency



# Economics and Scaling as Technology Services Provider

# Operational Costs

- Mortgage or Rent
- Utilities
- Bank Financing
- Taxes
- Admin Salaries
- Direct Labor Costs
- Vehicles
- Equipment Leases
- Health Insurance
- Travel & Entertainment
- Inventory
- Etc.

# Bank Financing

Credit Line	1,000,000.00
% APR	4.00%
Monthly APR	0.0033333333
Average Outstanding	500,000.00
Montly Payment	1,666.67
Yearly Payment	20,000.00

# Health Benefits

<b>HEALTH BENEFITS COST</b>	<b>Monthly Cost</b>	<b>Fully Paid Per Hour</b>	<b>50% Paid Per Hour</b>
Family	2,000.00	11.54	5.77
Employee & Spouse	1,800.00	10.38	5.19
Employee & Children	1,800.00	10.38	5.19
Employee	700.00	4.04	2.02

# True Labor Cost Calculations

Cost Description	Percent %				
Hourly Wage		30.00			
<b>Hourly Wage</b>		<b>30.00</b>	<b>30.00</b>	<b>30.00</b>	<b>30.00</b>
FICA	7.650%	2.300	2.300	2.300	2.300
FUTA	0.800%	0.240	0.240	0.240	0.240
SUI	6.100%	1.830	1.830	1.830	1.830
WC	2.720%	0.820	0.820	0.820	0.820
Gen Liability	0.7000%	0.210	0.210	0.210	0.210
		<b>5.40</b>	<b>5.40</b>	<b>5.40</b>	<b>5.40</b>
	17.9700%				
Sub Total		<b>35.40</b>	<b>35.40</b>	<b>35.40</b>	<b>35.40</b>
<b>Medical Benefits</b>					
Family		5.77			
Employee & Spouse			5.19		
Employee & Children				5.19	
Employee Only					2.02
		<b>41.17</b>	<b>40.59</b>	<b>40.59</b>	<b>37.42</b>
Yearly Cost		<b>85,633.60</b>	<b>84,427.20</b>	<b>84,427.20</b>	<b>77,833.60</b>

# Administrative Salary Costs

<b>ADMIN SALARIES</b>	<b>No.</b>	<b>Health Benefits</b>	<b>Hourly Wage</b>	<b>Hourly Cost</b>	<b>Weekly Cost</b>	<b>Monthly Cost</b>	<b>Yearly Cost</b>
Owner	1	E & F	60.00	76.56	3,062.40	13,168.32	158,019.84
Office Manager	1	E & S	30.00	40.59	1,623.60	6,981.48	83,777.76
Admin Support	1	E	18.00	23.27	930.80	4,002.44	48,029.28
Salesperson	1	E & S	30.00	40.59	1,623.60	6,981.48	83,777.76
Project Manager	1	E & F	30.00	41.17	1,646.80	7,081.24	84,974.88
Project Manager	1	E & F	30.00	41.17	1,646.80	7,081.24	84,974.88
Project Manager	1	E & C	35.00	46.50	1,860.00	7,998.00	95,976.00
Expediter	1	E	15.00	19.73	789.20	3,393.56	40,722.72
<b>TOTAL</b>	<b>8</b>					<b>56,687.76</b>	<b>680,253.12</b>

# Burn Rate and Scaling

Burn Rate is:

- The rate of consumption of money required to operate a business
- The consumption of financial resources in the operation of a business





# Administrative Burn Rate

<b>COST CENTER</b>	<b>Monthly</b>	<b>Yearly</b>
	<b>Cost</b>	<b>Cost</b>
Administrative Salaries		
Administrative Health Benefits		
Admin Retirement (401K 4% matcing contribution)		
Bank Financing		
Taxes		
Other Insurances		
FacilityRent / Mortgage (including CAM & taxes)		
Utilities		
Vehicles		
Marketing / Web		
Meals / Entertainment		
Insurance(Included in labor cost)		
Equipment / Tooling		
Training		
Misc. Office Supplies		
<b>TOTAL</b>		

# Project Burn Rate

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
	3/4/19	3/11/19	3/18/19	3/25/19	4/1/19	4/8/19
Tech Hours	72.00	160.00	240.00	240.00	240.00	240.00
Tech Hours Cost	2,272.08	5,001.60	7,252.00	7,252.00	7,252.00	7,252.00
Accumulated Tech Hours	72.00	232.00	472.00	712.00	952.00	1,192.00
Accumulated Tech Hours Cost	2,272.08	7,273.68	14,525.68	21,777.68	29,029.68	36,281.68
Ordered Material Cost (1st. 50% )	107,000.00					
Ordered Material Cost (2nd. 50% )					107,000.00	
Total Project Spend (Project Debt)	109,272.08	116,545.76	131,071.44	138,323.44	252,575.44	259,827.44
Accumulated Cash Burn ( Payroll)	2,272.08	9,545.76	16,797.76	24,049.76	31,301.76	38,553.76
Ordered Material Payment Due (1st. 50%)					107,000.00	
Invoice Labor Value (Sell Price)				32,581.12		
Invoice Materials Value (Sell Price)				128,400.00		
Total Invoice Amount Submitted				160,981.12		
Retainage				16,098.11		
Total Invoice Amount In Queue For Payment				144,883.01		
Invoice Amount Paid						

# Project Burn Rate

	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
	4/15/19	4/22/19	4/29/19	5/6/19	5/13/19	5/20/19
Tech Hours	240.00	240.00	240.00	240.00	240.00	240.00
Tech Hours Cost	7,252.00	7,252.00	7,252.00	7,252.00	7,252.00	7,252.00
Accumulated Tech Hours	1,432.00	1,672.00	1,912.00	2,152.00	2,392.00	2,632.00
Accumulated Tech Hours Cost	43,533.68	50,785.68	58,037.68	65,289.68	72,541.68	79,793.68
Total Project Spend (Project Debt)	267,079.44	274,331.44	281,583.44	288,835.44	296,087.44	303,339.44
Accumulated Cash Burned ( Payroll)	45,805.76	53,057.76	60,309.76	67,561.76	74,813.76	82,065.76
Ordered Material Payment Due (2nd. 50%)			107,000.00			
Invoice Labor Value (Sell Price)		43,929.60				
Invoice Value Materials (Sell Price)		128,400.00				
Total Invoice Amount Submitted		172,329.60				
Retainage		17,232.96				
Total Invoice Amount In Queue For Payment		155,096.64				
Invoice Amount Paid			144,883.01			

# Burn Rate and Scaling

- The accurate prediction of cost regarding scaling strategies is essential.
- The accurate calculation of profitable revenue required to offset cost is essential

- New Van = 33,000

220,000 in revenue at 15% Profit  
= 33,000



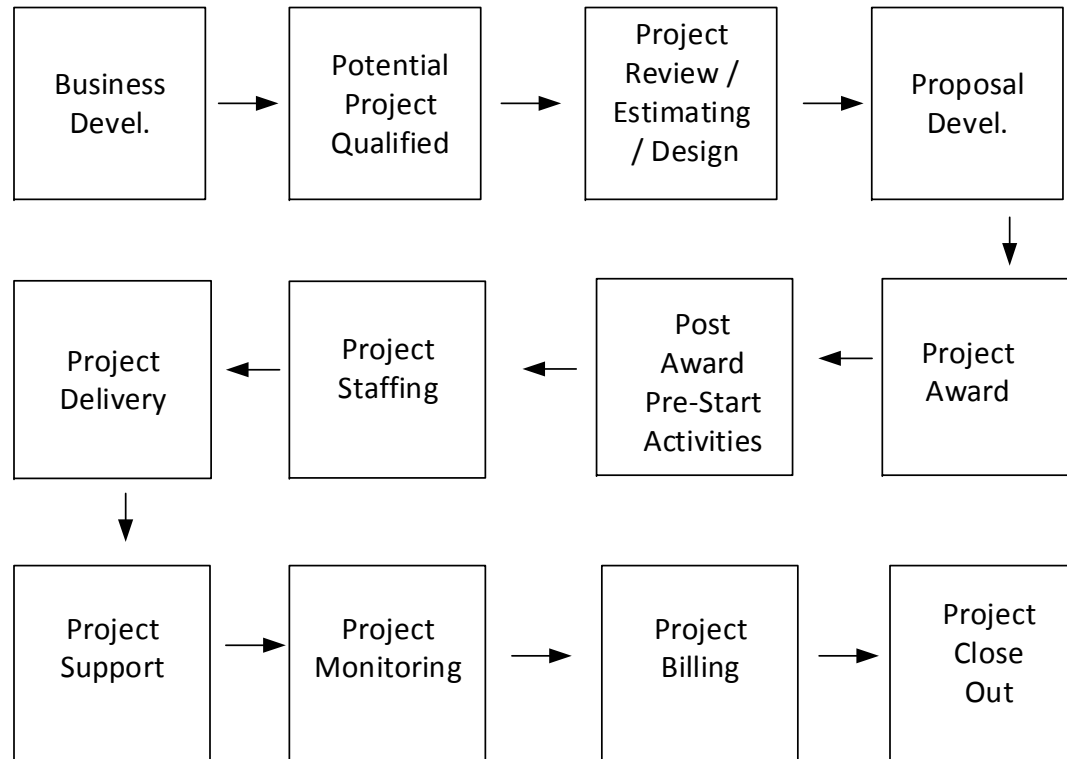
# Efficiency Scaling as Technology Services Provider

# Scaling as a Technology Services Provider

- Consulting
- Design / Engineering
- Design Build
- Infrastructure, Appliance and System Installation
- Maintenance and Service



# Typical Workflow



# Organizational Components That Support Workflow

- How do you achieve proportional growth of business component
- How do you maintain consistency within component

Business Devel.	Project Estimating / Design	Purchasing
Project Execution / Production	HR / Personnel	Accounting / Business Office
Project Support	Project Monitoring	Admin. Support



# Efficiency Scaling

- Email campaigns
- Specific purpose correspondences
- Proposal formats
- Presentations
- Common content



Business  
Devel.

# The Like Proposal Phenomenon

- You happen to be working on a proposal for a project that is very similar to another project recently quoted.
- The proposal come together very quickly
- There is satisfaction in leveraging replication

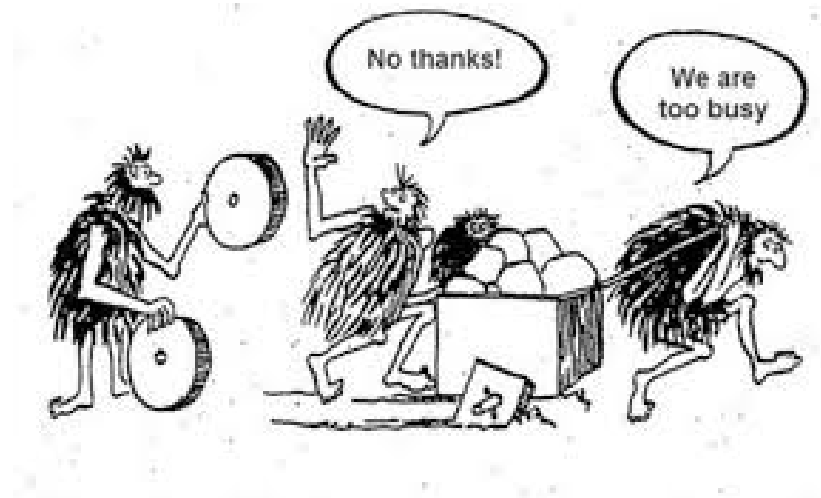


# The Dreaded Proposal Next Friday

## Proposal Elements Not Organized or Prepared

- Narrative
- Certifications
- Submittals
- Single Line Illustrations

## The Anticipation of Reinventing the Wheel is Awful



# Efficiency Scaling

- Estimating templates
- Terms and conditions
- Schedules of values
- Labor calculations
- Production schedules

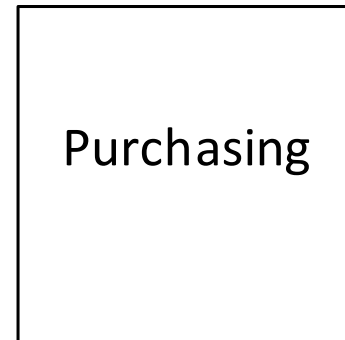
Project  
Estimating  
/ Design

# Common Schedule of Values

ITEM #	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK FROM PREVIOUS APPLICATIONS	COMPLETED THIS PERIOD	STORED MATERIALS	TOTAL COMPLETED / STORED TO DATE (D+E+F)	% COMPLETED TO DATE	BALANCE TO FINISH (C-G)	RETAINAGE
1	Start-Up / Mobilization (2% of Contract Price)	\$625.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$625.00	\$0.00
2	Procurement of Cable Support Hardware	\$475.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$475.00	\$0.00
3	Procurement of Backbone Cable	\$1,830.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$1,830.00	\$0.00
4	Procurement of Horizontal Cable	\$9,965.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$9,965.00	\$0.00
5	Procurement of Telecommunication Room Hardware	\$4,300.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$4,300.00	\$0.00
6	Labor - Backbone Cable Rough-in & Terminations	\$2,720.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$2,720.00	\$0.00
7	Labor - Horizontal Cable Rough-in & Terminations	\$9,690.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$9,690.00	\$0.00
8	Labor - Certification Testing	\$950.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$950.00	\$0.00
9	Furnish As-Built and Warranty Documentation	\$695.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	\$695.00	\$0.00

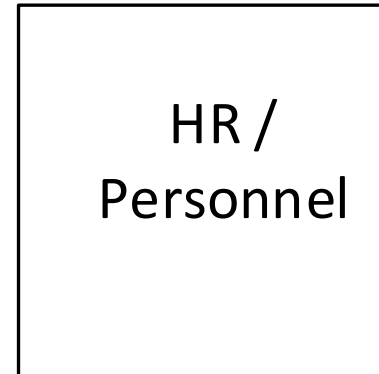
# Efficiency Scaling

- Common correspondence formats
- Price book items
- Product cut sheet library



# Efficiency Scaling

- Strong potential to leverage efficiency
- Common employment contracts
- Common policies
- Common file structures
- Common onboarding process



# Scaling and Talent

- All organizations should be allocating some time each month to find talent, even if there are no positions currently open.
- Knowing where talent is and who might be available is critical to scaling





# Efficiency Scaling

- Perhaps the most scalable organizational component
- Common proposal format
- Common contract documents organization
- Library of email templates, cut sheets, company certifications
- Common file structures for data storage



Admin.  
Support

# Documentation Continually Asked For

- Experience Modification Rating (EMR)
- Safety Manual
- Bonding Capacity
- Organizational Chart
- Five (5) Largest Projects
- Five (5) Similar Projects
- Client References
- Vendor References
- Business Registration Certifications
- Certificate of Insurance
- Project Team Member Resumes
- Product Certifications
- Professional Certifications
- Electrical Permit Applications

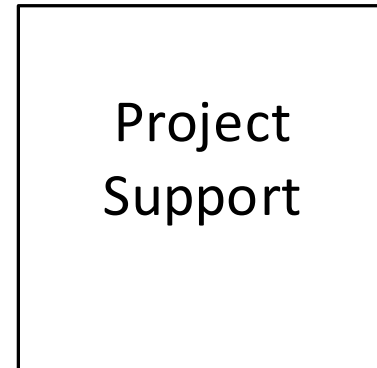
# Efficiency Scaling

- Much original work, but still many replicable activities
- Common project handoff package
- Common reporting structures
- Common job descriptions
- Common training and expectations

Project  
Execution /  
Production

# Efficiency Scaling

- Consistent organization of tools & equipment
- Established communication policies for project support requests
- Talent in the project support role
- Sufficient project support for level of activity



# Project Support

- The correct and timely management of materials, tooling and equipment is a tangible contributor to project success.
- Poor project support erodes operational morale and tangible contributes to project failure



# Efficiency Scaling

- Consistent selection of metrics to monitor
  - Schedule of vales task completion
  - Tasks remaining
  - Hours consumed
  - Hours remaining
  - Material spend
  - Invoicing
  - Payments

Project  
Monitoring

# Efficiency Scaling

- Intuitive reporting
- Intuitive data input from field
- Meaningful and consistent project review
- Consistent performance evaluation criteria
- Objective presentation of data

Accounting  
/  
Business  
Office

# Challenges to Achieving Scale



# Desired Linear Scale

REVENUE	EXPENSE	GROSS PROFIT	GROSS PROFIT %	ADMIN EXPENSE	NET PROFIT	NET PROFIT %
1,000,000.00	800,000.00	200,000.00	20.00%	100,000.00	100,000.00	10.00%
1,250,000.00	1,000,000.00	250,000.00	20.00%	125,000.00	125,000.00	10.00%
1,562,500.00	1,250,000.00	312,500.00	20.00%	156,250.00	156,250.00	10.00%
1,953,125.00	1,562,500.00	390,625.00	20.00%	195,312.50	195,312.50	10.00%
2,441,406.25	1,953,125.00	488,281.25	20.00%	244,140.63	244,140.63	10.00%

# Unfortunate Non-Linear Scale

REVENUE	EXPENSE	GROSS PROFIT	GROSS PROFIT %	ADMIN EXPENSE	NET PROFIT	NET PROFIT %
1,000,000.00	800,000.00	200,000.00	20.00%	100,000.00	100,000.00	10.00%
1,250,000.00	1,000,000.00	250,000.00	20.00%	137,500.00	112,500.00	9.00%
1,562,500.00	1,270,000.00	292,500.00	18.72%	171,875.00	120,625.00	7.72%
1,953,125.00	1,625,600.00	327,525.00	16.77%	214,843.75	112,681.25	5.77%
2,441,406.25	2,097,024.00	344,382.25	14.11%	292,968.75	51,413.50	2.11%

# Unavailable Talent

- Current Production Team Rating
  - (2) A
  - (1) B
  - (1) C
- Will scaled team maintain same composition?



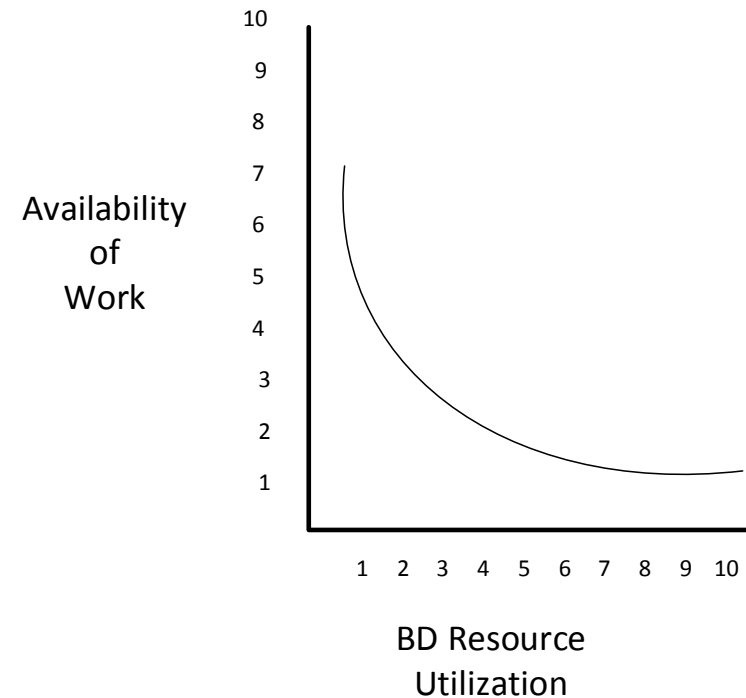
# Scale and Cash Flow

- Organizations typically need to implement scaling strategies in advance of additional work and associated revenue
- An outlay of cash will often be required with no immediate incoming revenue.



# Weakening Market

- Work easier to acquire in stronger markets
- Work more difficult to acquire in weaker markets



# Inability to Delegate

- Attempt to assign task
- Assumption task is being completed
- Uncompleted task lands back on your desk



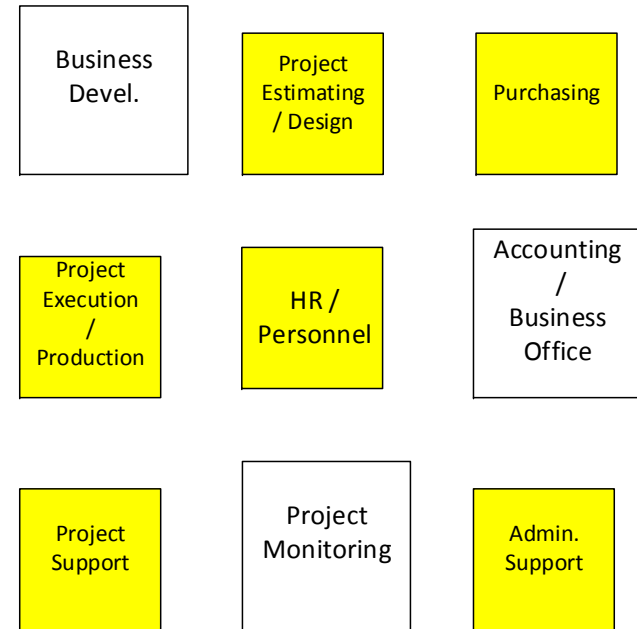
# Proportional (Balanced) Scale

Business Devel.	Project Estimating / Design	Purchasing
Project Execution / Production	HR / Personnel	Accounting / Business Office
Project Support	Project Monitoring	Admin. Support

Business Devel.	Project Estimating / Design	Purchasing
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# Non-Proportional (Unbalanced) Scale

Business Devel.	Project Estimating / Design	Purchasing
Project Execution / Production	HR / Personnel	Accounting / Business Office
Project Support	Project Monitoring	Admin. Support





# Business Development and Unbalanced Scale

- You hire Sue, an accomplished Account Manager in your market
- Sue knows a lot of people, works hard and brings in several legitimate opportunities
- Estimating / design can't keep up with work and associated proposal due dates and pushes back
- Operations does not have sufficient resources to deliver the additional awarded work. Project juggling starts, operations pushes back
- Business Development, Estimating / Design and Operations are all stressed and unhappy

# Inability to Do More of What You Do Well

Smart Business Devel. Activities
Smart Qualification of Opportunities
Correct Estimating
Correct Buying
Effective Project Management
Productive Project Delivery
Timely and Correct Invoicing

Smart Business Devel. Activities	Business Devel. Activities	Business Devel. Activities
Smart Qualification of Opportunities	Smart Qualification of Opportunities	Smart Qualification of Opportunities
Correct Estimating	Correct Estimating	Correct Estimating
Correct Buying	Correct Buying	Correct Buying
Effective Project Management	Effective Project Management	Effective Project Management
Productive Project Delivery	Productive Project Delivery	Productive Project Delivery
Timely and Correct Invoicing	Timely and Correct Invoicing	Timely and Correct Invoicing

# Organizational Adoption of Scaling Strategies

# Adoption of Scaling Strategies

- “You are going to work a lot harder, and I’m going to make a lot more money.....what do you think?”



# Adoption of Scaling Strategies

- Implementation of scaling strategies requires a team effort
- Ownership should be as transparent as possible in regard to scaling goals
- Staff impacted by scaling strategies should participate in positive scaling outcomes

# Unavoidable Scaling Truth

“you know what more work is....its more work”



# Summary

# SUMMARY

- Scaling refers to proportional growth
- Business scaling refers to the proportional growth of revenue, expense and profit
- The general goal of scaling is achieving **increased profit** by leveraging experience, size and efficiency
- Some types of business are easier to scale than others
- There are necessary prerequisites to successfully achieving scale that relate to knowledge about your business



# SUMMARY

- The key vehicles for achieving scale are: **Investment** and **Efficiency**
- Technology services firms can be challenging to scale due to many uncontrollable variables
- Technology services firms can successfully achieve scale by leveraging all activities that can be easily replicated

# Achieving Scale

“We are what we repeatedly do, Excellence is therefore not an act but a habit”

Aristotle

# Thank You

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